

THE INFLUENCE OF TRAINING METHODS AND MOTIVATION ON JUNIOR HIGH SCHOOL STUDENTS' 100 METERS RUNNING ABILITIES

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Abstract

This research aims to determine the effect of the intensive interval method, repetition method and motivation on 100 meter sprint performance. This type of research is a quasi-experiment (with a 2x2 factorial design. The population of this research is students of SMP N 2 Pangkalan Limapuluh Kota, totaling 195 people, while the sample of this research is 48 people who are divided into two groups, 27% students with high motivation and 27% with low motivation. The instruments used in this research were motivation tests and speed tests in the 100 meter sprint performance. Data were analyzed using a two-way analysis of variance technique (ANOVA 2x2). The results of data analysis show that: (1) there is a difference in the achievement of 100 meter sprint speed between the group that used the intensive interval series method and the group that used the repetition series method, (2) there was an interaction between the training method and the level of motivation in increasing the speed of sprint performance. 100 meters, (3) at a high level of motivation, the intensive interval series method is more effective than the repetition series method in improving the 100 meter sprint performance of junior high school students, (4) Furthermore, at low motivation, the repetition series method is more effective than the intensive interval method in Junior high school students' 100 meter short distance running performance.

Keywords: *Training Methods; Motivation; 100 Meter Running*

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INTRODUCTION

Athletics is actually an inseparable part of the Indonesian sports movement which aims to form a healthy body and mind and a noble personality (Faizah, A., & Herdyanto, 2019). Athletics include running, jumping and throwing movements (Jarver, 2014). Short distance running is one of the most popular events in athletics. Included in sprinting are the 100 meter, 200 meter and 400 meter events.

In running the 100 meter distance, each individual has a different travel time according to their level of training. Short distance running speed is an attempt to run as fast as possible in order to achieve maximum speed in the shortest possible time (Sartono, 2018). 100 meter short distance running (sprint) is an athletic event that requires high speed. The 100 meter short distance run is an anaerobic run, meaning it does not require a lot of O₂ but must be completed as quickly as possible (Widhiyanti, 2016). Sprinting takes 10-15 seconds and is a sport that is classified as anaerobic, because the higher the speed, the greater the aerobic energy source (Nurhayati, C. D. L., & Widodo, 2018).

Some basic short distance running techniques that must be mastered are starting, acceleration, full speed at a distance of 70/80 meters in 100 meters. Next, the final movement that athletes do in the 100 meter run is the finish. For fast running or sprinting, the start that is often used is the squat start. According to (Wiaro, 2013) "Squatting starts are divided into three types, namely short starts (bunch start), medium starts and long starts".

To improve short distance running ability, suitable training methods are needed, such as interval training and repetition training. Interval training is highly recommended because the results are very positive for the development of athletes' endurance. Interval training itself is a training system punctuated by intervals in the form of rest periods (Mulyawan, R., Sidik, D. Z., & Hidayat, 2016). research results (Yamin, A., 2020) which state that the application of extensive interval training with many repetitions and little rest will stimulate the heart's work so that the oxygen uptake process will be maximized. research results (Suhdy, 2018) show that this intensive interval method will be able to improve complex motor nerves. research results (Rosdiana, F., Sidik, D. Z., & Rusdiana, 2019) which state that high intensity interval training can also be called sprint interval training (SIT) which is carried out and carried out at high intensity starting from as low as 85%. Intensive interval method with characteristics of submaximal load intensity (80-90%), medium load volume (6-10 repetitions per

series), load interval 90-180 seconds between series, medium load duration 30-60 seconds.

The repetition training method or what is usually called the repetition method is a training method that places more emphasis on working at a very high intensity and then taking full (perfect) rest with a longer rest period. The repetition method is a method that is often used by trainers, because this method is carried out by applying many repetitions so that the training objectives can be achieved maximally (Faude, et al, 2013). In fast running repetition training, the intensity is higher, namely 90%-100%. Training with high intensity (90%-100% maximum) will result in higher lactate accumulation compared to training with lower intensity (80%-90% submaximal).

According to (Uno, 2013) motivation is an urge that exists within a person to try to make better changes in behavior to meet their needs. According to Robbins (in Widodo, 2017), motivation is a stage that provides an explanation of the intensity, direction and perseverance of an individual to achieve goals. According to (Oktavian, 2015) motivation is a driving force that has become active. Motivation becomes active at a certain moment, when the need to achieve a goal is strongly felt/lived. A strong motivation must be directed and controlled well so that a person does not ignore the values contained in the sport itself. High children's motivation will create conducive learning conditions so that students can learn effectively (Novita, N., et al, 2022). With this, it can be seen that motivation has a positive impact on the athlete, namely that he will show a persistent performance in order to achieve a result that is possible for him to achieve. However, on the other hand, motivation also has a negative impact on the athlete, both directly and indirectly.

Based on field surveys, it can be seen that students' running skills are still low, the form of training carried out lacks variety and is boring, so that students appear less enthusiastic about doing running training. This study aims to see the difference in the ability to run 100 meters between the group given the intensive

interval training method and the group given the repetition training method with high and low motivation in junior high school students

METHOD

This type of research is quantitative research with a quasi-experimental research design. The aim of this research is to determine the effect of the training methods provided and motivation on the ability to run 100 meters. To see the motivation of junior high school students. This research was carried out on the sports field at SMP Negeri 2 Pangkalan Limapuluh Kota Regency.

The population in this study were students of SMP Negeri 2 Pangkalan Limapuluh Kota Regency consisting of 195 male and female students. Sampling was carried out using quota sampling technique. From this explanation, sampling was carried out in an affordable manner and based on certain objectives from an affordable population of only 90 male students which was determined as the sample frame. The next step was to carry out a motivation test on 90 male students using a motivation questionnaire that had been made previously. The results of the questionnaire are then sorted from highest score to lowest score. To determine the high and low categories of a score for each treatment group, this can be done by dividing group members using the percentage technique (post hoc blocking). The percentage technique referred to is determining 27% of the highest score group and 27% of the lowest score group for each group. Thus, the number of samples obtained in each treatment group was 48 students consisting of 24 students for the high group score and 24 students for the low group score which was obtained from $(27\% \text{ of } 90 = 24.3 \text{ which is rounded to } 24 \text{ students})$.

Table 1. Research Sample

Motivation	Training method		Total (person)
	Intensive intervals (A ₁)	Repetitions (A ₂)	
Height (B ₁)	12	12	24
Low (B ₂)	12	12	24
Total	24	24	48

To obtain data in this study, an initial 100 meter running test was carried out. Treatment Procedure Groups A1B1 and A1B2 were given interval running training and groups A2B1 and A2B2 were given repetition training. Each group was given treatment for six (6) weeks with a frequency of 3 times a week (initial test, 16 practice sessions and final test), namely Monday, Wednesday and Saturday. After undergoing 16 training meetings, at the end of the training program there is a final test using the 100 meter running test.

The research data obtained were analyzed using a two-way analysis of variance (ANOVA) technique and continued with the Tukey test, if an interaction was found between the motivation variable and the training method variable. Because this research is an experiment with a 2 and the homogeneity of variance test uses the barlet test with a significance level of $\alpha = 0.05$.

RESULT AND DISCUSSION

Hypothesis testing in this study was carried out using two-way analysis of variance (ANOVA). As a requirement for this, a normality test and a variance homogeneity test are needed. From the results of the data group normality test using the Liliefors test, all data groups in this study were taken from a normally distributed population so that they can be used to test research hypotheses. The complete calculation of the homogeneity test can be seen in the Bartlett test summary attachment so that the results of the group of 100 meter running speed data that were tested were homogeneous.

Research hypothesis testing was carried out using the two-way Anova technique. After there is an interaction, a further test is carried out using the Tuckey test. The use of the two-way ANOVA technique aims to determine the individual contribution of the independent variables to the experimental results (main effect) and to determine the interaction effect. The main influences in this research are (1) the difference in the influence of intensive interval training methods and repetitions on 100 meter running speed, (2) the interaction is a

combination of method and level of training motivation on 100 meter running speed, can be seen in Table 2.

Table 2. Summary of Two Way Anova Results

Steps	JK	dk	RJK=JK/dk	Fh=RJK/RJKD	Ft ($\alpha=0,05$)
Between Training Methods (a)	298,85	1	298,85	8,22*	4,05
Inter Motivation to Practice (b)	612,54	1	612,54	16,86*	4,05
Interaction (axB)	2274,94	1	2274,94	62,60*	4,05
In Group	1598,94	44	36,34		
Total Deduction	4785,27	47			

Based on the summary of the results of the two-way Anava calculations above, it can be stated that: 1) The alternative hypothesis (H_a) which states that there are differences in training methods between groups trained using intensive interval and repetition training methods is accepted, because the calculation results show that $F_{count} = 8.22 > F_{table} = 4.05$. 2) The alternative hypothesis (H_a) which states that there is an interaction between method and level of training motivation in its influence on increasing 100 meter running speed is accepted, because the calculation results show that $F_{count} = 62, 60 > F_{table} = 4.05$.

With the research hypothesis proven which states that there is an interaction effect between method and level of training motivation on increasing 100 meter running speed, the analysis needs to be continued with the Tuckey test. The complete calculation of the Tuckey test can be seen in the attachment, while a summary of the Tuckey test results is presented in table 3:

Table 3. Advanced Stage Anova Results with Tuckey Test

Compared Groups	Dk	Qh	Qt ($\alpha=0.05$)	Note
A ₁ dan A ₂	1,23	4,05	2,92	Significant
A ₁ B ₁ dan A ₂ B ₁	1,74	5,04	3,77	Significant
A ₁ B ₂ dan A ₂ B ₂	1,74	10,78	3,77	Significant

Based on the results of further tests using the Tuckey test above, it can be stated that: 1) The first research hypothesis which states that the Intensive Interval training method (A₁) running speed of 100 meters is higher than that trained using the Repetition training method (A₂) is accepted. The average group training

method score (A1) = 52.48 was significantly lower than the average group A2 training method score = 47.49 ($Q_h = 4.05 > Q_t = 2.92$).

2) The second research hypothesis which states that there is an interaction between training methods and training motivation on 100 meter running speed, was accepted. This means that the increase in a player's 100 meter running speed is determined by the interaction between the training method used and the level of training motivation of the sample following the training process.

3) The third research hypothesis which stated that at a high level of training motivation, the group given the intensive interval training method (A1B1) had higher results than the group using the repetition training method (A2B1), was accepted. The mean score of the intensive Interval training method (A1B1) = 57.95 is significantly higher than the mean score of the Repetition training method (A2B1) = 49.17 ($Q_h = 5.04 > Q_t = 3.77$).

4) The fourth research hypothesis which states that at low levels of training motivation, the 100 meter running speed trained using the Repetition training method (A2B2) is higher than those trained using the Intensive Interval training method (A1B2), was accepted. The average score for the Interval training method (A1B2) = 37.03 is significantly higher than the average score for the Repetition training method (A2B2) = 55.79 ($Q_h = 10.78 > Q_t = 3.77$).

As stated in the previous theoretical study, the interval training method will be more effective in increasing the speed of the 100 meter run, because the Intensive interval training method is carried out with a fairly high or submaximal intensity and with varying distances and with short intensity between repetitions, will cause the subject to have a high tolerance for fatigue when doing interval running training so that what the trainer wants is achieved. Choosing a training method and creating an appropriate training program when starting training is an important thing to do to achieve the expected achievement targets.

Repetition training is an exercise that is often used in training to increase running speed. However, when repetition training is carried out at maximum

intensity and over a long distance, even though there is a long rest between repetitions, it will cause the subject to experience fatigue more quickly. As a result of this fatigue, there is an increase in the concentration of lactic acid in the muscles, so that the following performance (running training) the subject is relatively unable to run at maximum speed. Exercise carried out at high intensity (maximum) will result in higher lactate accumulation compared to exercise at lower intensity.

An increase in high lactate accumulation in muscles can result in a decrease in pH in muscles and blood, which can inhibit the work of enzymes that play a role in energy formation. A delay in energy supply will cause rapid muscle contractions to not be maintained, and this will affect speed endurance. Even though speed endurance is very necessary in maintaining running speed. And also in this repetition training method there is no variation in the running distance, which causes boredom for students following the training.

Based on these findings, there is an interaction between the intensive interval training method and the repetition training method in students who have training motivation for 100 meter running speed. It can be described by comparing the average scores with high and low training motivation as follows:

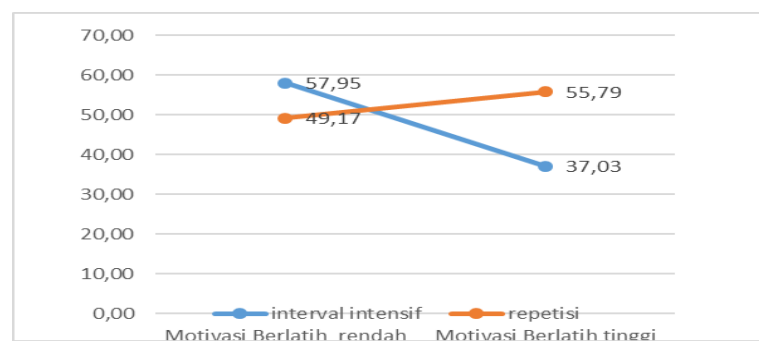


Figure 1. Interaction of Training Methods with Practice Motivation

Based on Figure 1 above, it shows that there is an interaction between the use of training methods and training motivation. Interaction is a relationship of dependence between a variable on a certain level of another variable. This shows

that there is a dependency between the independent variable, namely the training method, and the moderator variable, namely training motivation, on the dependent variable, 100 meter running speed. Based on the results of the hypothesis testing analysis, it can be concluded that there is an interaction between the use of training methods and training motivation on 100 meter running speed.

Discussion

According to Ullah, et al, (2013) motivation is an important medium and mandatory requirement that stimulates critical thinking among students. In this case, students need motivation from other people to make an effort and achieve the desired goals. Motivation is the encouragement or driving force within an individual to carry out sports activities and ensures continuous training to achieve maximum performance.

According to (Widya Nurkusuma, 2017) motivation is energy within a person which is characterized by the emergence of "feelings" and is preceded by a response to a goal. Students who have high training motivation have a strong drive within themselves to get good results, while students who have low motivation do not have enthusiasm for training or competitions and students who have low motivation only do things because they are influenced by external factors.

Based on the explanation above, it is clear that motivation is one of the factors that really determines a person's achievement. Therefore, the application of intensive interval training methods and repetition training methods to increase 100 meter running speed is supported by high motivation because with high motivation you will also get good performance.

CONCLUSION

The intensive interval training method is more effective for increasing 100 meter running speed than the repetition training method. There is an interaction between training methods and training motivation regarding 100 meter running speed. At a high level of training motivation, the interval training method is more

effective than the Repetition training method for increasing the 100 meter running speed of junior high school students. At a low level of training motivation, the Repetition training method is more effective than the interval training method for increasing the 100 meter running speed of junior high school students.

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